

Memorandum

Police Department



Date: August 31, 2001
To: City Council
From: Mike Ringo, Commander
Subject: Photo Radar / Red Light Program Summary

The Tempe Police Department Traffic Bureau recently completed an annual review of the Photo Radar / Red Light Program. This program provides enforcement through the use of two photo radar vans and two red-light cameras in an effort to reduce traffic accidents, combat speeding, and deter red light violations. The following is a summary of the report findings and recommendations after reviewing the data from April 1997 to present:

- 12/31/01 the City's contract with Lockheed Martin, the vendor of our photo radar and photo red light program expires.
- To date 52,710 complaints have been issued for speed violations and 5,489 complaints for red light violations.
- For the most part the program has been cost neutral with the revenue collected off setting the operational costs. The program has produced a net of \$75,805.00 over the last 4 years.
- The program has demonstrated a decrease in the overall number of driver/vehicle violations within specific enforcement zones.
- The program has not demonstrated a correlation between photo radar and photo red-light enforcement in terms of reducing traffic collisions.
- The program generated a great deal of media interest, which may prove beneficial toward public awareness about speeding and red light violations.
- A test/evaluation was conducted on adding speed on green (enhanced technology) to the photo red-light portion of the program. This allows the Department to identify speeders going through red-light intersections—in essence, it combines photo red-light with photo enforcement. The results support it being considered as an additional element to intersection enforcement.
- A review of other cities entering into or continuing photo radar / red light programs revealed the overall cost of operation has increased. If photo radar and red-light enforcement continues in Tempe, the additional cost of the program could result in higher overall costs.
- The Police Department supports continuing and expanding the existing program by adding one additional photo enforcement van for a total of three, and adding three additional photo red-light intersections for a total of five.

Memorandum

City of Tempe



Date: August 28, 2001

To: Mike Ringo, Commander

From: Don Yennie, Sergeant

Subject: Photo Enforcement Review

Purpose:

The current photo enforcement contract expires on December 31, 2001. The existing contract was extended for a one year period in December 2000, and is unable to be extended again. The last review of the photo enforcement program was done in December of 2000. This memorandum will review the overall progress of the program for the duration of the entire program, from its inception in April, 1997 to the most current statistics from June, 2001.

Program Goal:

When the photo enforcement program was designed, its goal was to reduce the collision rate within the City of Tempe. Photo enforcement in Tempe began in April 1997. During the past four years, numerous events have taken place in the City which have had an impact on the collision rate. These events have both negative and positive influences on the collision rate in Tempe. Listed below are some of those events:

- Completion of the loop 202 freeway and the loop 101 freeway through Tempe jurisdiction.
- Infrastructure affecting the road right of way i.e. installation of fiber optic cable for the last several years.
- Intersection closures for utility service interruptions i.e. water main break at Rural and Broadway.
- Completion of the Town Lake.
- Increased special events in and around the downtown area.
- The start of the selective enforcement motor squad.

Program Parameters

The photo enforcement area is encompassed by McClintock to the east, Mill to the west, the Salt River bed to the north, and Baseline to the south. Only the collisions occurring during deployment of the photo radar units were examined. This period is between 0600 and 1800 hours, Monday through Saturday excluding holidays.

The photo enforcement program currently has two intersections with photo red lights. The intersections are McClintock and Southern and Rural and Broadway. These intersections are configured for photo red light enforcement in the following manner. Each intersection monitors only one approach to the intersection. McClintock and Southern monitors southbound traffic, while Broadway and Rural monitors northbound traffic. The collision rate at both these intersections has shown both increases and decreases since the inception of the photo red light program. There has been no consistency in the number of collisions at either intersection as to the increase or decrease in the number of total collisions. Refer to the attached graph.

Collision Rate Comparison:

Collision statistics from April 1993 through March 2001 indicate the collision rate for the City has remained inconsistent as to a trend in either increases or decreases. Refer to the attached graph for comparative information.

An examination of the collision rate four years prior to photo enforcement and four years after its implementation was performed to get an idea of the possible influence photo enforcement has had on the collision rate. The time spans April 1, 1993 through March 31, 2001. Examination of the information revealed the following statistics:

- Total collisions inside the photo radar enforcement area have decreased by 0.6% since the inception of the program while total collisions outside the photo radar enforcement area have increased by 4%.
- Property Damage Only collisions have increased 15.1% inside the photo radar enforcement area and increased 19.3% outside the photo radar enforcement area.
- Fatal collisions have decreased by 28.6% inside the photo radar enforcement area and increased 81.8% outside the photo radar enforcement area.
- Injury collisions have decreased 18.3% inside the photo radar enforcement area and decreased 13.3% outside the photo radar enforcement area.

One could draw the conclusion that with the exception of property damage collisions, photo enforcement has had a positive influence on the reduction of collisions occurring within the photo enforcement area.

Speed / Violation Related Statistics:

An examination of the influence photo enforcement had on the speed of traffic and red light violations was conducted between March 1998 and March 2001. The information contained in this comparison is valuable since the numbers are compared to the first one-year review. In every area measured, the numbers have been reduced, to have the most favorable influence on the collision rate if that conclusion could be drawn.

	March 98	March 01	% change
➤ The number of vehicles in violation (11+ mph over the posted speed) of the total traffic observed:	2.55%	1.28%	-49.8%
➤ The average traffic speed, above or below posted speed limit:	-2.3 mph	-2.0 mph	+13.0%
➤ The average violator speed above posted speed limit:	15.6 mph	13.4 mph	-14.1%
➤ The number of violations (traveling 11+ mph over the posted speed limit) per hour of enforcement:	20.8 per hour	8.3 per hour	-60.1%
➤ The number of red light violations recorded per hour at Southern and McClintock.	.13 per hour	.03 per hour	-76.9%
➤ The number of red light violations recorded per hour at Rural and Broadway.	.36 per hour	.32 per hour	-11.1%

Program Productivity:

A review of the program productivity refers to the relationship between the identification of a speed or red light violation and the actual issuance of a traffic complaint. Lockheed Martin provided the data for this category. From the information, a percentage relationship between violation detection and the issuance of a complaint (ticket) has been identified, which reveals an average issuance ratio of 33%.

Photo Enforcement Violation v. Complaint Statistics				
Data is from April 1997 to June 2001				
Year	Photo Radar Violation/Complaint	Photo Red light Violation/Complaint	Total Violation/Complaint	Percent
1997	32944 / 9240	4425 / 1133	37369 / 10373	27%
1998	41876 / 13474	4916 / 1603	46792 / 15077	32%
1999	36969 / 12633	4012 / 1282	40981 / 13915	33%
2000	31980/12384	2712/948	34692/13332	38%
2001	14545/4979	1225/523	15770/5502	35%

There are numerous factors preventing the violation from resulting in a complaint. Some of those factors may include:

- The image is not clear enough to identify the license plate number or the driver.
- License plate is registered to a business.
- Sun glare on the license plate or windshields.
- The van operator's log does not match the violation photo or the van operator does not observe the violation.
- Van operator errors or deployment test shots.
- The driver's identity is shielded by objects (including items such as tinted face shields on motorcycle helmets).
- Dark vehicle interiors.
- Gender of the driver is different than that of the registered owner.
- Other weather related conditions.
- Out of state plate registration not accessible to the vendor.
- Vehicles without license plates.
- Close vehicle groupings within the photo.
- Traffic control direction by police officers (such as officers directing vehicles at a collision site within either of the red light camera intersections resulting in the camera being activated).

Personal Process Service:

Since the inception of photo enforcement, one of the considerations of the program has been what action to take against those who do not respond to the mailed notifications of the photo enforcement violation. The notifications are sent to the registered owner of the vehicle captured in the photographs. To address this issue, a personal process service program was researched and subsequently implemented. In October 2000, Lockheed Martin commenced providing personal service to those registered owners living in Maricopa County who failed to respond to the mailed summons. During the first 9 months of operation, 64% of those registered owners who had disregarded their notices were served through personal process service.

Process Service Results			
	October 00	November 00	December 00
Summons sent for service	113	68	151
Summons actually served	50	64	23

2001	Jan	Feb	Mar	April	May	June	Total
Sent	153	177	212	203	157	208	1442
served	168	108	162	123	123	110	931
Percent of successful service from October 2000 to June 2001							
64%							

During the research on the feasibility of process service, it was discovered that the City of Tempe benefits highly due to a high response rate on the photo enforcement mailings. The response rate for the fiscal year 2000/ 2001 was 80%. This achievement can be attributed to the high level of integrity in the program. For example, we do a gender match against the name of the registered owner of the vehicle captured in the photo of the violation. If the gender of the driver of the violator vehicle does not match the gender of the registered owner, no citation is created. In contrast, Scottsdale issues all citations to the registered owner regardless of gender of the driver.

Financial Considerations:

As with any program created to address traffic violations its financial independence from tax moneys would be the goal. A review of the photo enforcement program financial stability should be considered. The span of this review began with the program in March 1997 through June 2001. Since the program began in March 1997, the city has collected **\$3,150,990.04**, and paid **\$1,181,723** in photo enforcement fees. Subtracting the fees paid to Lockheed Martin (\$1,181,723) leaves a balance of **\$1,969,267.04**. The State surcharges were **\$1,208,656.22**, leaving **\$760,610.82**. From this sum, salaries for the three Traffic Enforcement Aides, one Court Services Specialist I hired for the program as well as 25% of the Parking Supervisor's salary were added, for a total of **\$668,821.00**. Subtracting the total for the salaries, a net revenue gain for the program is **\$91,789.00**

	1997 10 months	1998	1999	2000	2001 6 months	Totals
1 Traffic Sergeant*	\$9,592	\$12,117	\$12,755	\$13,425	\$ 8,174	\$ 56,063
Traffic Enf. Aide	\$28,325	\$35,690	\$37,475	\$39,348	\$ 17,371	
3 Positions	\$84,975	\$107,070	\$112,425	\$118,044	\$ 52,114	\$ 474,628
1 Court Service Spc. I	\$24,227	\$30,603	\$32,214	\$33,900	\$ 17,186	\$138,130
Total Employee Expenses						\$ 668,821
Total revenue						760,610
Difference						\$91,789
* Traffic Sergeant position is responsible for parking enforcement and photo enforcement. Approximately 25% of his time is devoted solely to photo enforcement. Net revenue does not reflect ancillary off dollar expenses.						

In April 1999, the program started to send a business letter to license plates that returned registered to a business. The intent of this letter was to notify the business owner or manager that their vehicle had been recorded as a photo enforcement violator. The letter asked the responsible party for the business to identify the driver of the vehicle so a complaint could be issued. The fee from Lockheed Martin for issuing these letters is \$3.00 per letter. Since this program started, 1,869 letters were generated in 1999, 2,294 were generated in 2000 and in the first six months of 2001, 988 letters were issued. The cost of these letters is not recovered directly in any collected fee. The financial impact of this program as of June 30 2001 is **\$15,984.00**

	April/Dec 1999	Jan/Dec 2000	Jan/June 2001	Total
Business Notices	1,869	2,471	988	5,328
Cost to City	\$5,607	\$7,413	\$2,964	\$15,984
Balance Forward				\$91,789
Difference				+\$75,805

It is estimated that the service could cost the city \$550.00 to \$600.00 per month or \$6,600.00 to \$7200.00 a year. If all those defendants were charged a personal service fee, the program would be cost neutral.

Pending Legislation:

For the past several years, bills have been unsuccessfully introduced into the legislature to provide for owner responsibility in photo enforcement violations. This change in the law has yet to pass, however several cities have recently started photo enforcement programs. Most notable are the Cities of Phoenix and Chandler. With the majority of the large population cities involved in photo enforcement programs, owner responsibility has a greater chance of passing. If this legislation does pass, it will have a positive impact on the ability of the program to sustain itself financially. The need for personal service would no longer exist and it is expected that the fines for photo enforcement violations would decrease.

Conclusion:

Having completed a review of the accomplishments of photo enforcement for the past 50 months, several issues are apparent. The statistics collected by the photo radar and red light equipment are significant. The information was compared to the first year of operation and the present. All measured areas have moved in favor of photo enforcement having a positive influence on traffic. The average speed in the photo radar area has dropped 20%. The number of vehicles in violation (11 plus mph over the speed limit) has dropped 64%. The number of red light violations has reduced at McClintock and Southern by 40%, and the number of red light violations has reduced at Broadway and Rural by 19%.

A review of the collision rate within the city indicates photo enforcement is one factor that may influence this rate. The statistics for the **overall** collision rate in the city over the past 5 years has shown an increase of 17%, from 5503 collisions ending March 1997 to 6609 collisions ending March 2001. Correlating comparative data from the four years preceding photo enforcement to four years after the inception of photo enforcement has revealed the following; Property damage only collisions have increased in the photo enforcement area by 15% and all other collision areas to include total, fatal and injury collisions have decreased within the photo enforcement area.

Financially, the photo enforcement program has had a minimal financial impact on the city. We should keep in mind our current contract has a price per citation rate of \$39.50 for both red lights and speed violations. The City of Phoenix has recently contracted with Lockheed Martin for a one-year contract, and is paying \$93.00 per citation issued. The City of Phoenix charges a fee for a red light violation of \$175.00, and the fines for speed violations vary dependent upon the speed of the violator. The current fees for both red light and speed violations in Tempe are \$145.00. The anticipated increase in the contract will have an adverse impact in the cost of operating the photo radar and red light program to the City, and should be considered in the upcoming Request for Proposal negotiations. The City of Mesa contracts with Lockheed Martin, and is paying \$51.00 per citation issued, which was negotiated in their five-year contract.

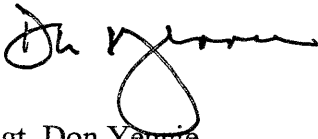
Recommendation:

As The City of Tempe continues its efforts to reduce the number of collisions within the city, our recommendation is to expand our current photo enforcement program by adding one additional photo enforcement van. With the addition of the van, one additional employee would be needed to operate the unit. Our strategy would be to deploy this additional van on major arterial streets and utilize the van for school zone enforcement.

We also recommend adding three intersections for photo red light enforcement. The intersections will be selected after a review of accident statistics and recommendations from Traffic Engineering. We also recommend the implementation of speed on green program at all photo red light intersections as outlined in the attachment.

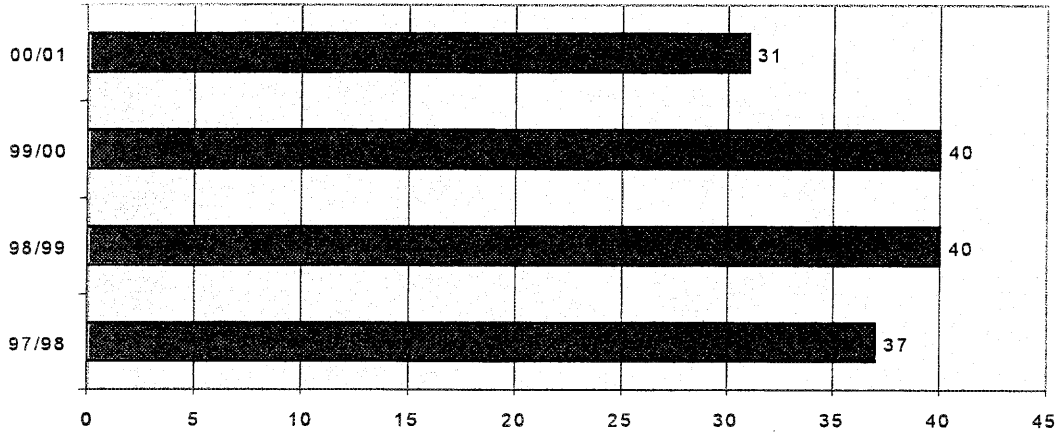
We have learned over the past 4 years that the collision rate has too many variables to connect the increase or decrease of collisions to photo enforcement. We believe the program has demonstrated a reduction in speed through the photo enforcement area. We would like to expand our goals to further reduce speeds through the city and to have a positive effect on the overall reduction in the number of collisions within the entire City of Tempe.

Respectfully submitted,

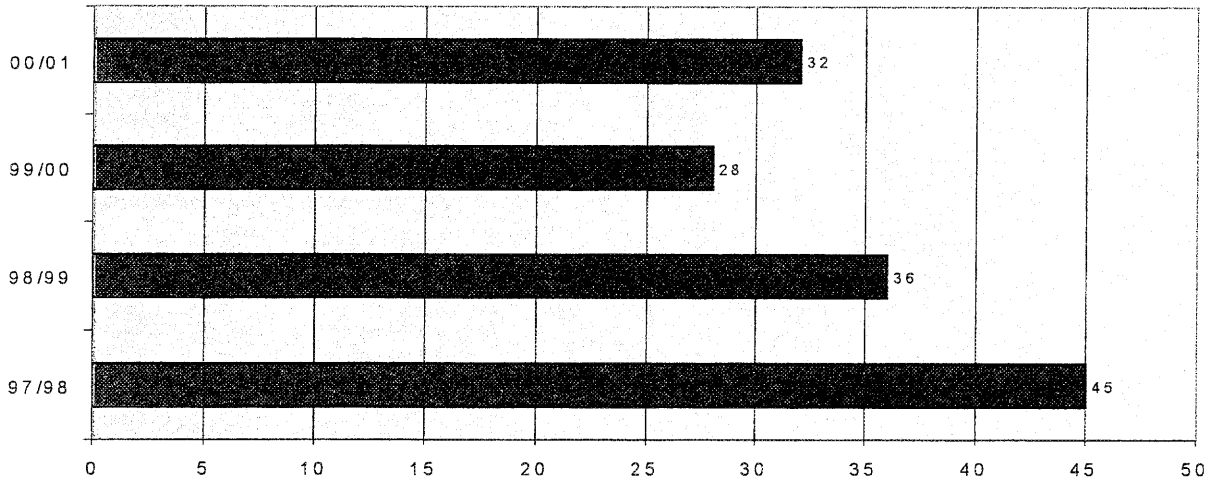


Sgt. Don Yennie
Photo Enforcement Administrator

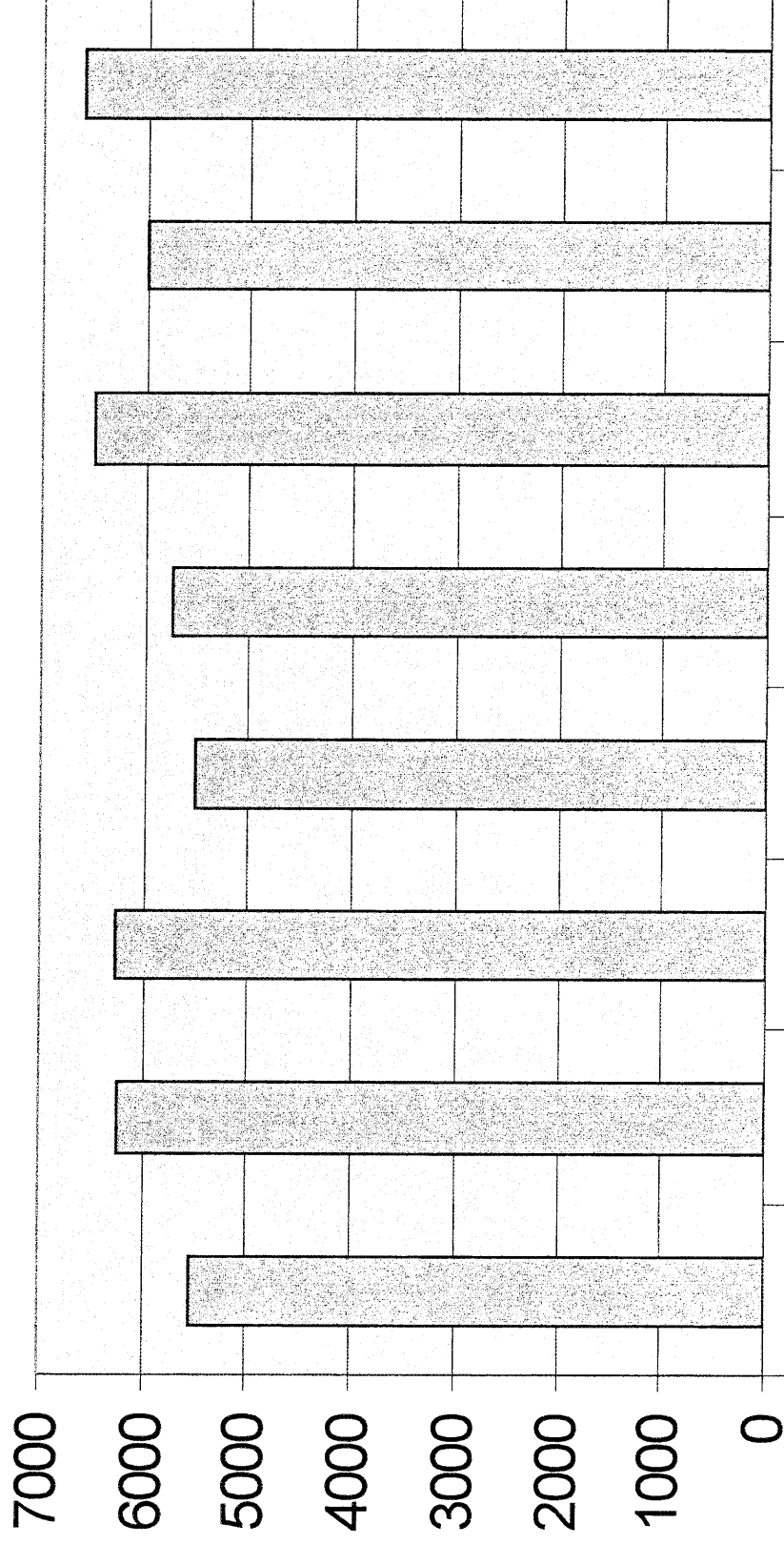
Broadway and Rural Accident Comparison



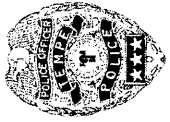
Southern and McClintock Accident Comparison



Total Accidents



Accidents	5536	6255	6268	5503	5748	6504	5998	6609
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TEMPE POLICE DEPARTMENT

PHOTO ENFORCEMENT REVENUES

FISCAL YEAR: 1997/1998 (covers April 1997 through June 1998)

Total Collected Revenue to the City of Tempe:		CITY RECEIVES To Gen. Fund
Minus State Surcharges:	793,962.00	
Minus Court Enhancement Fund:	594,547.80	
Minus Vendor Billing:	494,927.80	
City Fines:	180,960.80	180,960.80

FISCAL YEAR: 1998/1999 (covers July 1998 through June 1999)

Total Collected Revenue to the City of Tempe		860,902.99
Minus State Surcharges:	640,692.72	
Minus Court Enhancement Fund:	536,572.72	
Minus Vendor Billing:	220,335.72	
City Fines:	220,335.72	220,335.72

FISCAL YEAR: 1999/2000 (covers July 1999 through June 2000)

Total Collected Revenue to the City of Tempe		814,628.30
Minus State Surcharges:	571,859.41	
Minus Court Enhancement Fund:	488,329.41	
** Minus PD Enhancement Fund:	415,129.41	415,129.41
Minus Vendor Billing:	108,021.41	
City Fines:	108,021.41	108,021.41

FISCAL YEAR: 2000/2001 (covers July 2000 through June 2001)

Total Collected Revenue to the City of Tempe		681,496.75
Minus State Surcharges:	482,463.89	
Minus Court Enhancement Fund:	422,503.89	
** Minus PD Enhancement Fund:	362,543.89	362,543.89
Minus Vendor Billing:	95,151.89	
City Fines:	95,151.89	95,151.89

**Goes into the City's General Fund (effective) 8/99

Total City Benefit:

1,382,143.12

Memorandum

Police Department



Date: August 29, 2001

To: Commander Mike Ringo

From: Sgt. Don Yennie

Subject: Speed on green survey

Sir,

During the month of June 2001, a study was conducted to determine the effectiveness of a speed on green program at the intersections of McClintock and Southern, and Rural and Broadway. This study revealed the data collected from the intersection of McClintock and Southern was unable to be applied to the study, as the induction loops at that location were ineffective for such a study. The intersection would have to be reintroduced to new induction loops to make an adequate determination of the data collected.

The intersection of Rural and Broadway was monitored from June 15 to June 29, 2001. Speeds were first recorded beginning 11 mph over the posted 40-mph limit. From the data received from Rural and Broadway, it was determined there were the following violations.

- Speeds recorded above the limit on the green phase revealed 192 violations, with speed ranges from 52-68 mph.
- Speeds recorded above the limit on the yellow phase revealed 83 violations, with speed ranges from 52-65 mph.
- Speeds recorded above the limit on the red phase revealed 13 violations, with speed ranges from 51-59 mph.

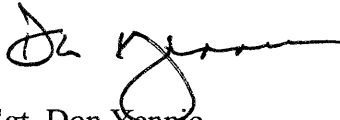
Conclusion

The speed on green program is one that can effectively enhance the current photo enforcement program. The added bonus is that the monitoring of speeds through the selected intersections can continue 24 hours per day, with no manpower issues that face the current program of deploying at certain locations during selected times and hours.

Recommendation

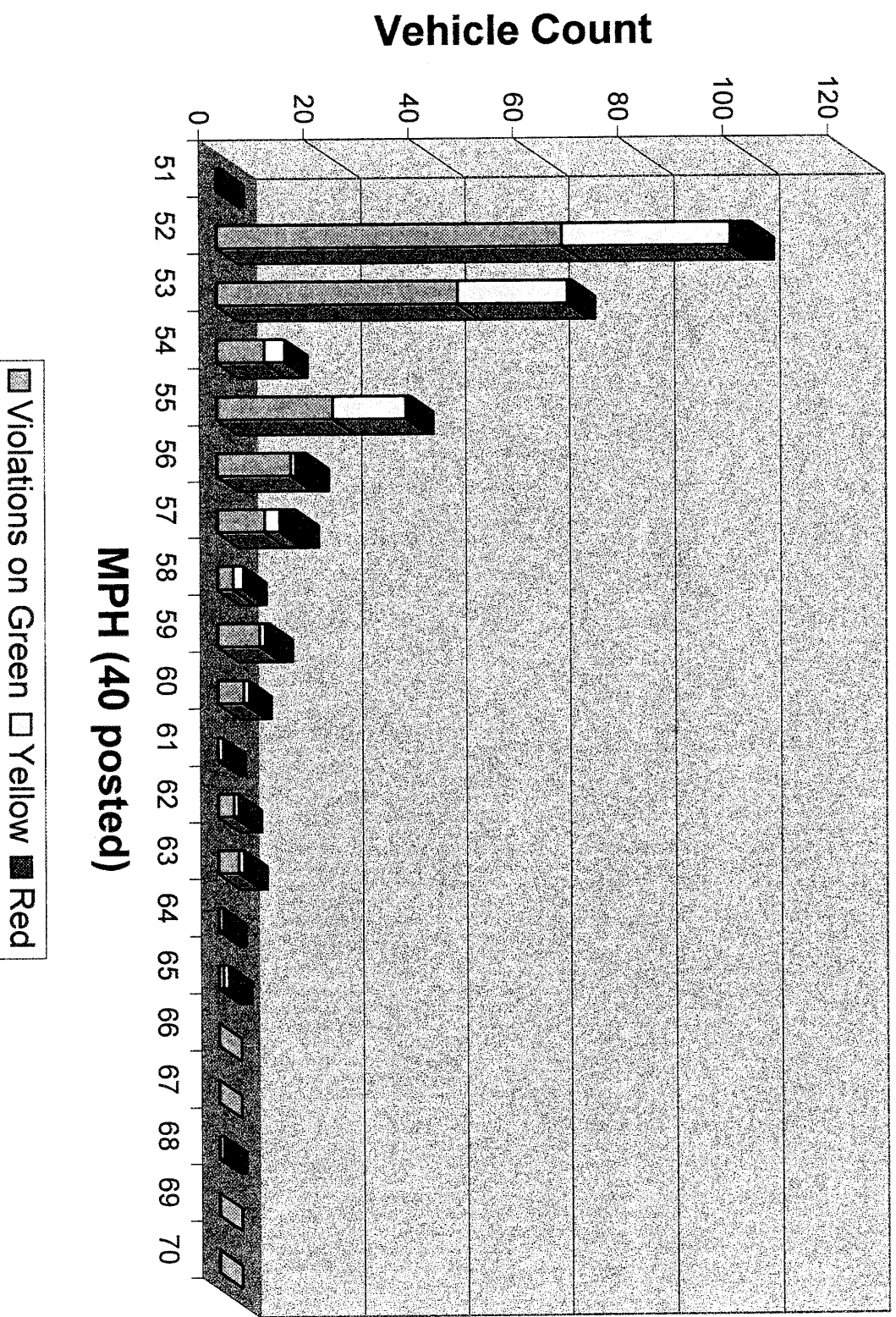
There are two locations currently utilizing photo red light enforcement, which are Rural and Broadway and McClintock and Southern. It is recommended there should be additional intersections added for red light enforcement, and all intersections should implement the speed on green enforcement program.

Respectfully submitted,

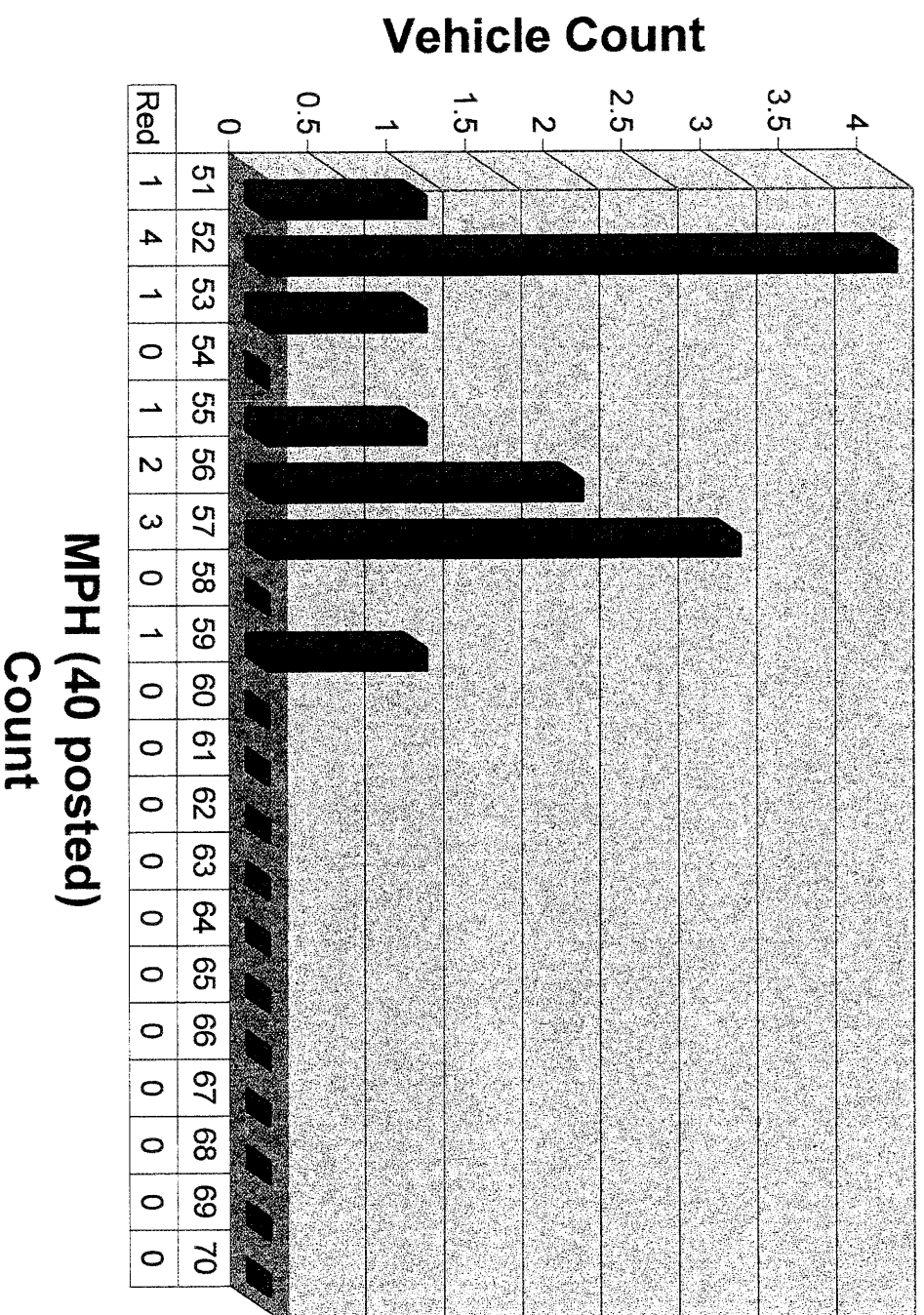
A handwritten signature in black ink, appearing to read "Don Yennie", with a stylized flourish at the end.

Sgt. Don Yennie
Photo Radar Coordinator

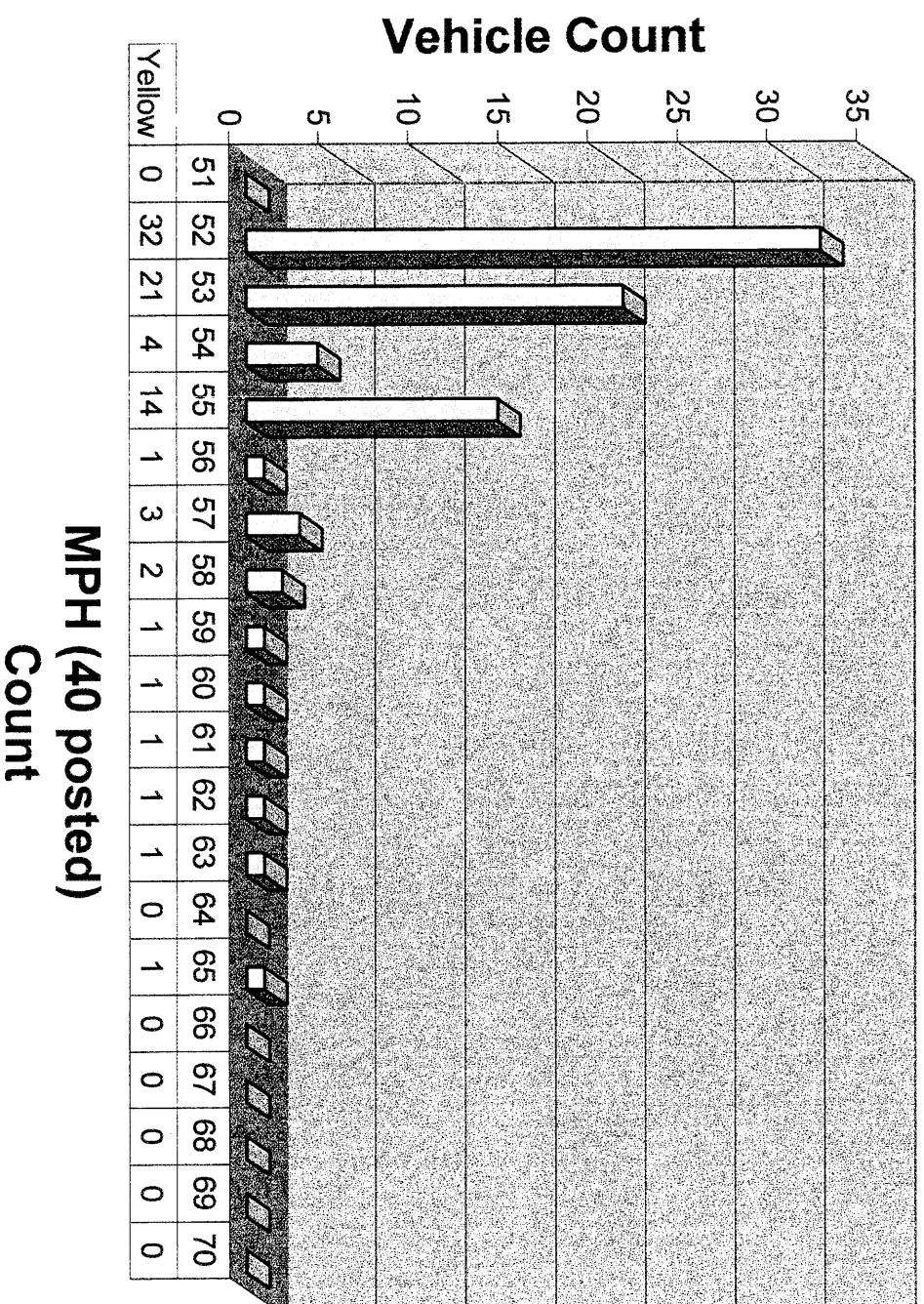
Intersection Speed Analysis



Intersection Speed Analysis



Intersection Speed Analysis



☐ Yellow

Intersection Speed Analysis

